

1. A multiaxial artificial disc replacement (ADR), comprising:
 - 2 a lower component adapted for fixation to an inferior vertebral body;
 - an upper component adapted for fixation to a superior vertebral body; and
 - 4 an element that allows movement between the lower and upper components along two separate, independent axes.
2. The multiaxial ADR of claim 1, wherein the two axes are orthogonal to
2 one another.
3. The multiaxial ADR of claim 1, wherein one of the axes is generally
2 medial-lateral, and the other axis is generally anterior-posterior.
4. The multiaxial ADR of claim 1, wherein the element that allows
2 movement between the lower and upper components is a cruciate-shaped axle.
5. The multiaxial ADR of claim 1, further including a cushioning component
2 situated between the upper and lower components.
6. The multiaxial ADR of claim 5, wherein the cushioning component is an
2 elastomer.
7. The multiaxial ADR of claim 5, wherein the cushioning component is a
2 hydrogel.
8. The multiaxial ADR of claim 5, wherein the cushioning component is a
2 spring.
9. The multiaxial ADR of claim 1, wherein one or both of the upper and
2 lower components include a bone-ingrowth surface associated with fixation.

10. The multiaxial ADR of claim 1, wherein one or both of the upper and
2 lower components are loosely coupled to a respective vertebral body with a mobile link.
11. The multiaxial ADR of claim 1, further including a seal to contain debris.
12. The multiaxial ADR of claim 11, wherein the seal surrounds the periphery
2 of the upper and lower components.
13. The multiaxial ADR of claim 11, wherein the seal is disposed around the
2 central articulating component.
14. The multiaxial ADR of claim 1, further including a fluid-containing seal.
15. The multiaxial ADR of claim 1, wherein the fluid includes water or
2 aqueous solutions, triglyceride oil, soybean oil, an inorganic oil (e.g. silicone oil or
fluorocarbon), glycerin, ethylene glycol, or other animal, vegetable, synthetic oil, or
4 combinations thereof.